

## GREAT DEDICATION TO QUALITY SOCIETY

### Dr. Kaoru Ishikawa

#### Achievements

Ever since Dr. Ishikawa joined the Quality Control Research Group of the Union of Japanese Scientists and Engineers (JUSE) in 1949, he has devoted himself as one of the few pioneers of quality control activities in Japan, and played a leading role in the development of its various activities in the areas of study, training, dissemination and promotion, leaving outstanding achievements in each area.

Among many of his deeds, the QC Circle activity, which is widely known worldwide, is what Dr. Ishikawa first proposed in 1962 and has offered guidance and worked for its penetration to every shopfloor. In 1960, he originated the "quality month." approach, which is now adopted in many countries, and has since guided the nationwide penetration of quality improvement campaigns including the implementation of so-called "Q Banner" quality verification logotype.

Dr. Ishikawa committed himself in almost every QC-related training course of JUSE and has acted as chairman of the steering committee of several courses and offered guidance. Moreover, he stepped up to add the two specific courses, "Sales Department Course" and "Purchasing Department Course" to the courses of

JUSE which were already provided for whole people in the company in accordance with each class. Actually he was always acting with the policy, "Quality Control begins from education and concludes with education."

Further, he enthusiastically organized various symposiums and conferences on quality control by exercising his belief that "QC begins with the interaction of people." The belief has been internationally propagated. He always played both three times of International Conference on Quality Control (ICQC) and International Convention of QC Circle (ICQCC) the central role in the implementation of the plan for in Japan by assuming the responsibility of the chairmanship of their program committees.

Additionally, he was much concerned with the standardization activities sponsored by the Japan Standard Association, and contributed to the establishment of many of the Japan Industrial Standards relevant to QC which he proposed International Standardization Organization (ISO) to incorporate. His achievements in this area are internationally recognized as



well.

Since the beginning of the 1980's, Dr. Ishikawa's international activities have further broadened. He visited thirty or more countries in response to their request for the introduction of Japanese TQC and guidance. His activities in his late years are indeed international.

His achievements in publication have also been diversified. As chairman of each editing committee of JUSE's periodicals, namely, "Total Quality Control", "QC Circle", and an English language quarterly entitled "Reports of Statistical Application Research, JUSE," he positively introduced valuable papers, and also he authored 23 books (including those he collaborated as editor or co-author) and submitted 170 theses in total. Of these works he received the "Nikkei Q.C. Literature Prize" for 8 books and 2 theses. (Continue to page 3)

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# 40-Year History of JUSE Quality Control Basic Course

## How This Course Has Contributed to the Development of QC in Japan

Dr. Kenji KUROGANE Counselor, JUSE



Quality control activities in Japan started when the concept was first introduced from the United States after the World War II. At first, statistical quality control was emphasized, but gradually, problems specific to the Japanese businesses were tried to be solved, and actually solved, until the TQC, the most typical

Japanese style QC has been established today.

As frequently mentioned in International Conferences on Quality Control (ICQC), features of the Japanese quality control include intensive education and training relating to quality control, a number of QC methods developed on the basis of statistical methods, and extensive promotion and application of QC activities and their results throughout the country.

Many seminars on quality control sponsored by JUSE are available in Japan today, including a number of courses designed for top executives, management, managers and section chiefs, TQC promotors, foremen, operators, QC Circle members, peoples working in sales dept. and purchasing dept. etc.

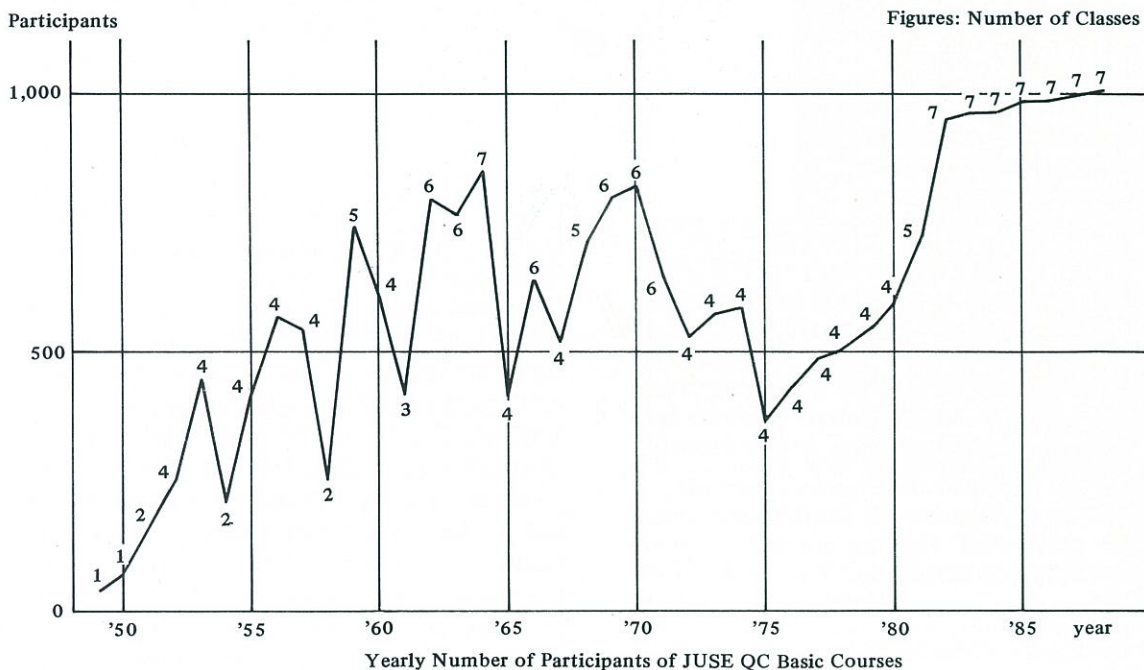
Of these seminars, Quality Control Basic Course (QC-

BC) is the first full-scale QC-related seminar in Japan, which was first announced in September 1949. This course celebrates the 40th anniversary this year, and a total of 24,269 graduates will be sent out to the society, including the 75th graduates-to-be in coming September.

Initially, the Seminar emphasized introduction of literatures on overseas quality control activities and theory, but soon the Seminar started to use its own texts and curriculum. The contents have been constantly enhanced by the addition of control chart method, statistical method, statistical theory, sampling inspection, sampling and many other SQC's. Further, practical ways to promote QC activities and other QC management themes are also added.

At present, the Seminar is held 5 days a month and lasts for 6 months, as many as 30 days in total. It is held in Tokyo and Osaka twice a year, respectively. The contents of curriculum have not been changed fundamentally, but recently, QC games are introduced using personal computers to reflect the extensive use of computers in businesses. In this way, the Seminar is flexible enough to cope with the change of the age.

Features of this Course include lectures that include a number of practical examples to have the participants correctly understand the QC way of thinking and QC methods, home works, exercises and discussion to deepen the understanding of lectures given, student tests, and



monthly group workshops of the man to man instruction style for the purpose of analyzing the data collected by the participants themselves about the immediate problems they face, carry out improvement thereupon and realize effective results.

This Course is managed by more than 200 lecturers comprising university teachers and managers of business enterprises, including Management Committee, Executives Board, Lecturers Board, various workshops and others. Improvements are also constantly discussed.

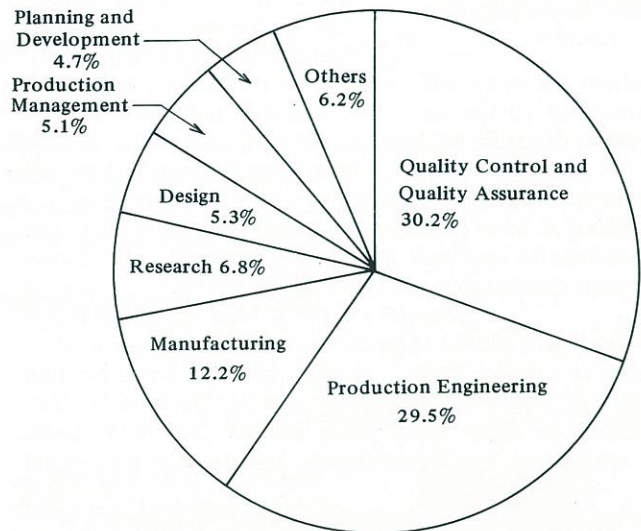
Graduates who have acquired problem solution ability using the QC way of thinking and statistical methods are producing positive results in solving problems in a number of business fields throughout Japan while working as the pivotal staff in the quality control activities of enterprises. This actual performance has in turn verified the importance of quality control activities and necessity of education in business firms. Many of these activities and positive results at enterprises are presented in the quality control convention for managers, section chiefs and staff held twice a year in spring and fall. The convention contributes to the mutual development between participating enterprises and enhanced quality control level in Japan. This is another reason why this Course is highly evaluated in the business circles.

Many graduates are working as managers, or assigned an important position in enterprises as management executives and top management, and are making steady efforts in enriching the quality control system in respective business fields. This is only possible with the BC which has so long a history.

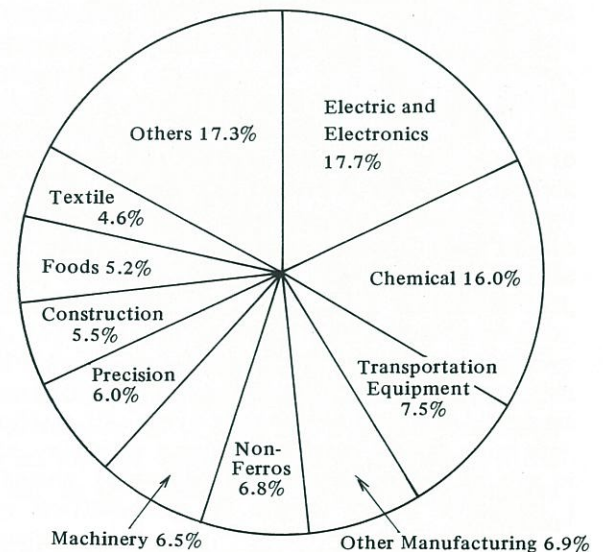
Quality control in Japan, which was first introduced from the U.S., have grown in the soil of Japan, and is making a steady progress into the future while attracting much attention of a number of countries in the world. This fundamental trend will never be changed in the future. During the course, the BC, which may be said to have created the foundation for the present-day quality control in Japan, will also continue to add new pages in the history and development of quality control in Japan. Fortunately, many people are continually wishing to study in this BC. To comply with the demand, two courses (A and B) are now available in each lesson in the seminar, but it is not sufficient yet.

How should we meet this demand for quantity without sacrificing quality of this Course, and how should we manage this Course, which supports the foundation of development of quality control in businesses – I am deeply concerned about these matters recently as one of the persons involved in the quality control activities in Japan.

Functions of the Participants in 1988 (N = 1005)



Industries of the Participants in 1988 (N = 1005)



(from page 1) Among these books, "General Principles of the QC Circle," JUSE, 1970 "How to Operate QC Circle Activities," JUSE, 1971 "Guide to Quality Control," JUSE, 1968 and "What is Total Quality Control? – the Japanese Way," JUSE 1981 been translated into ten or more different languages including English, French, Spanish, Chinese and others.

Against these achievements, Dr. Ishikawa has received the following commendations:

### Commendations

1952 Deming Prize, Deming Prize Committee – JUSE (with member of the QC Res. Group, JUSE)

- 1969 The Minister Award, Ministry of International Trade and Industry
- 1972 Grant Award, American Society for Quality Control
- 1976 Asada Prize, The Iron and Steel Institute of Japan
- 1976 Blue Ribbon Medal, Japanese Government
- 1982 Prize for the Development of Management Techniques, Japan Management Association
- 1983 Shewhart Medal, American Society for Quality Control
- 1988 The Second Order of the Sacred Treasure, Japanese Government

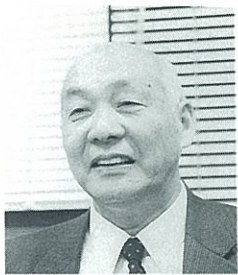
## “Positioning of TPM in TQC”

### extract from Round-Table Talk

– *Total Quality Control*, No. 5, 1989 pp.35-42 –

- Chairman: Mr. **Tatsuo Ikezawa**, Professor of Waseda University, Dept. of Industrial Engineering and Management, School of Science and Engineering
- Attendees: Mr. **Masayoshi Ozawa**, Ex-President of Yamagata NEC.  
Mr. **Masahiko Oyaizu**, Manager of Refresh Zeon Promotion Division, Nippon Zeon Co., Ltd.  
Mr. **Isamu Nohmaru**, Managing Director, Aichi Steel Works, Ltd.

#### Motives for Introduction of TQC and TPM



Mr. Ikezawa

**Ikezawa:** Will you tell us the history of the introduction of TQC and TPM in your companies?

**Ozawa:** There are many QC circle or team presentations under the theme of “Let Us Manufacture Products of Good Quality.” We checked 55 such presentations and carefully studied what was the preven-

tion of slip off in eventually manufacturing products of good quality. According to the collected data, most of the preventions of slip off were associated with the aged deterioration of equipment.

These data appealed very much. So I added TPM to the equipment QC and repaired equipment. Our industry is an equipment industry, and 99% is the prevention of slip off of equipment. It was a very large need for the cases of improving products, and it appealed to all the people concerned.

**Oyaizu:** In our case, we were then trying to improve corporate structure after the oil shock, and decided to start with the improvement of equipment control. In 1979, TPM was started. In 1982, all the four plants were awarded the PM Prize. TQC was started in 1981, and the Deming Prize was awarded us in 1985. This means that both were conducted in parallel during the two years.

As I recall, we first took up PM and laid the base for 5S and other controls, and this procedure was particularly effective in promoting the TQC activities which were later taken up. While doing PM, we realized the importance of improvements of various points and aspects and the important role of various controls. We also notices that such efforts should not be limited to the plants, but all the company should be involved in the improvement activities. We then decided to start TQC. In other words, if workshops are

improved, we can easily notice bad controls existing at source, or marketing departments or research centers who ask the workshops to do this or that. So we must consider enlarging the activity to include these divisions if we wish to achieve success. This prompted the introduction of QC.

**Oyaizu:** Nippon Zeon explains the difference between TQC and TPM on page 20, *Total Quality Control*, Vol. 38, No. 4 like this: “Because TPM is an equipment centered activity, the impact spreads just in the opposite direction as compared with TQC. With TPM, the main role is assigned to equipment which is installed in the midst of workshops and manufacturing products silently. The equipment is tended by 5S and daily maintenance programs every day so that they may be kept clean and easy to be used. The impacts then spread from this equipment to the plant as a whole and then to research centers and marketing departments. TPM is, however, an activity limited to the plants. In our case, TPM has advocated the importance of improvement of corporate structure and the importance of revolution of consciousness, and it eventually paved the road to the introduction of TQC.”

TQC was explained earlier in the same article in the literature like this: “TQC, as the name suggests, is a quality-centered activity. Information and impacts from the marketplace where products are sold are fed back to the plants via marketing departments and research and development centers. So far as TQC is concerned, it is difficult for the maintenance department, whose duty is to provide service to the manufacturing department, to be assigned the main role.” These two explanations seem to indicate that TQC and TPM are opponents each other, but actually, they



Mr. Ozawa



Mr. Oyaizu

are not conflicting with each other, because, in both cases, there are small-group activities at the bottom of the activity, supporting TQC and TPM, so each of them is part of an improvement activity.

**Nohmaru:** Our company introduced QC in 1967. The reason why we introduced QC was that the business was not

going well in the previous year, and the performance was in the red. So we tried to put it into the black and introduced QC. We then found that overinvestment in equipment was the cause of our getting into the red, and every person started to pursue the extremity in the equipment utilization. I remember that QC Circles also moved in this direction.

Then we experienced the second oil shock. Ex-president said that Toyota Motor was doing PM very successfully and suggested we should follow the case. We decided to do PM while conducting TQC. It was in 1978.

Once PM was started, we soon found that the targets of workshops were clearly defined and it was easy to do the PM activity. The workshops were activated, there were no objections to PM, and the activity gathered strength. As a result, we were awarded the PM Prize in 1981. Then we found reinforcement was necessary in the upper part of the company, or the managerial staff. Including such introspection, we re-introduced QC. We first introduced QC, then PM and again QC. Finally, we were awarded the Deming Prize the year before last.

## Way of Doing Things in TQC and TPM

**Oyaizu:** Is it necessary to distinguish between, for example, "we are now doing PM" and "this belongs to QC" in respect of each activity they are doing?

**Nohmaru:** No. It is a question of how to position TQC and TPM. We are now trying to be awarded the Japan Quality Control Medal now that we were awarded the Deming Prize. I am always telling the people in the company that PM must be directly connected with the efforts for winning the Japan Quality Control Medal. I mean that PM is part of TQC.

**Oyaizu:** We at our company are also doing PM while promoting TQC. We do not mean we stopped doing PM. On the contrary, we are doing both.

**Nohmaru:** At our company, the TQC Promotion Chamber and TPM Promotion Chamber are working in parallel. I am responsible for both Chambers.

**Ozawa:** We found TQC must be carried out together with PM for equipment control, and this is a sort of source control. In the first instance, we may say that if a terminal equipment is out of order, then we can repair it. However, if the original design is defective, we repeat repairs until we come to know that the design must be changed or improved. Not just the design, but we must check if our equipment or the products are up-to-date or not. This is a problem to be checked at the initial planning stage. When you talk about semiconductors for instance, you can not produce good products without up-to-date equipment. The equipment planning stage is very important.

Next, the equipment is surely running very well, but its control is not good, so the equipment fails very often. In this case, we need to do PM.

Therefore, as Mr. Nohmaru said, it is not unusual to do TQC first, then PM, and again TQC. However, this is limited to control of equipment.

**Oyaizu:** As you know well, PM emphasizes improvement in equipment efficiency, so we always focus on equipment design and equipment control, which are carried out mainly in the actual production workshops. The approach method may be somewhat different. PM is an activity in which a condition-to-be is predetermined and we all try to arrive at that level through improvement.

For example, 5S is a movement that needs no argument, and is an activity where the condition-to-be is predetermined, or it is preset that this or that type of equipment should be operated with so and so maintenance interval, and every person tries to achieve the goal.

In a word, with PM, each member knows what is to be improved and how far, that is, "what" portion is rather clear. It is, therefore, easy to take it up, and easy to understand. With QC, on the other hand, what to improve largely depends on the consciousness and capabilities of managers.

A PM teacher tells to correct this or that in concrete. A QC teacher, on the other hand, is willing to identify problems and tell how to analyze them, but will never tell what to repair in concrete. (laughter) He says you must think yourself. Whether it will go well or not depends on the capability.

**Ozawa:** You are right. People in the workshop would say PM is easy to do. This is because only concrete targets are given them. For instance, when a target is given to reduce machine troubles to one-tenth, they need not ask if one-tenth is enough, one-fifteenth or one-fifth is not required instead, etc. There is no ground to think in such a way. In the case of TQC, the way of thinking is clear enough as a policy management, but in the case of TPM, there is no such way of thinking.

For this reason, if they do PM company-wide, they feel something is missing, although they do not know what that really is, but at any rate, we can expect to have some effective results in a number of ways. This is quite sure.

**Nohmaru:** Companies are recently willing to give or set the situation-to-be, or targets, to the workshops, I understand.

**Oyaizu:** When people are working in a workshop, and are told this equipment should be run without a trouble for so and so time period, and something is wrong if the machine gets out of order in such a short time, then this is also quite a direct method.

**Ozawa:** Yes. It is very clear to direct workers. However, the management feels something is missing. This is the reason why I say PM is weak in planning and TQC is strong in planning.

**Ikezawa:** Mr. Nohmaru just said TQC Promotion Chamber and TPM Promotion Chambers were controlled by the same person. I think PM is characterized as an activity carried out in workshops, and TQC is an activity carried out company wide. This could be a big difference.

**Ozawa:** I am sure PM design is a very good idea. It is a design to lay out equipment for easy cleaning, and specifies cables should be laid in this way or that in concrete, and so on.



Mr. Nohmaru

## The 1st Software Production Quality Control Study Mission from JUSE Visit Europe and USA.

This mission headed by Dr. Ayatomo Kanno, Professor of Science, University of Tokyo consisted of 26 managers and programmers from computers makers and software houses went on a 15-day study tour in Europe and the United States, starting from April 22 of this year. The places that the mission visited were as follows.

France: CNET company

West Germany: Audi and Siemens

United Kingdom: ICL Company and CRS of City Univ.

United States: Bellcore Company, DEC, Seattle University, Microsoft, and Generic Software company

One of the mission's aims was to "affirm the one another's position in a mutual way across national and corporate boundaries based upon a worldwide perspective," and it received a very warm cooperation from the business enterprises and university that it visited, so that it was able to achieve even more than the original expectations.



## JUSE 21st QC Circle Study Team Visit Europe.

A JUSE team with Mr. Katsuhiko Tsunoda as leader and Mr. Ichiro Miyauchi as coordinator (both are JUSE Councilors) and consisting of 23 QC Circle promoters and leaders from 16 makers and 4 electric power companies made a 14-day tour of five European countries starting on March 12 of this year. In each country they visited, the team members had exchanges and get together with local QC Circles. They exchanged information on their respective situation at the present time, some problem points for promoting QC, tasks for the future, and so on. All the participants gained a great deal from these discussions.

The business enterprises that the team visited and the meetings they held were as follows:

U.K. — British Telecom company, Exchange with British QC Circles at D. Hutchins Assoc., etc.

France — Renault company, Exchange with French QC Circles AFCERQ, etc.

Italy — Fiat Automobile company, Olivetti company

West Germany: Robert Bosch company



**Nohmaru:** In our experience, when we were moving from PM to TQC, what we were most concerned was that PM emphasized results, while process emphasis, as used in TQC, was obscure, or almost ignored, if I may say. When I listen to their reporting, they omit intermediate process and suddenly start to enumerate results.

**Ikezawa:** In the case of Aichi Steel Works, there was a big qualitative difference between TQC as it was introduced in 1967 and TQC when they were awarded the Deming Prize. Now that they were awarded the Deming Prize, they noticed the superficialness of PM, or PM-related problems were made clear, so they decided to improve and enhance the PM activity after obtaining the Deming Prize. I understand the situation.

**Nohmaru:** They are supplementary each other in that sense.

**Ozawa:** TQC is connected with the social responsibility of a business firm. PM, on the other hand, instructs the workers to restore equipment to the original new conditions, eliminate 6 big losses, and bring profit to the company, or it emphasizes profitability of the company. The former is a company-wide activity, and the latter is a factory-level activity, in a sense. Even if it were a small factory-level activity, if it is added one after another, then we may have a company-wide effect, and this should be satisfactory. Some companies think like this.

**Oyaizu:** PM intends to improve in-house efficiency and they all look inwardly. QC looks outwardly and intends to improve and attain customer satisfaction. Both must be successful, otherwise the management will not be satisfied. To do external activities, in-house improvements are a must. To do in-house improvements, the external environment must be considered. I think these should be considered as a pair.

**Nohmaru:** The objective of PM may be said C and D of QCD. Q has been emphasized since when we were awarded the PM Prize. Initially, PM was preventive maintenance, but later, everybody was talking about production maintenance. Initially, therefore, C was the center of the discussion. C and D were the base, but they have been greatly improved since Q was added.

Q was the first in the case of TQC, and we say QCDSM. In the case of PM, we say PQCDSM, and Q comes after P (production = quantity)

**Ikezawa:** The objective of TQC is to produce good products. To produce good products, you must improve equipment to manufacture them. If Cp value of a machine is not good, or the process capacity system is low, then you must organize activities to improve them, because they affect Q most. In that sense, PM has already started to emphasize Q. ★

## 15 TQC Coordinators from Colombia Undergo 3-Week Training at JUSE

15 TQC coordinators were sent from the TQC Promotion Group organized by five businesses in Colombia in South America, namely, Manuelita SA (a sugar refiner), Uniroyal – Icollantas S.A. (Tires), Rica Rondo S.A. (Meat Packer), Banco de Occidente S.A. (Banking), Carvajal S.A. (printing and publishing), and they underwent further training in TQC at JUSE for three weeks between May 11 and 30 of this year.

The special course of 15 net days between Monday and Saturday included visits to 8 companies, and it was equivalent to the content of JUSE's QC Middle Management Course. There was also a thoroughgoing preparatory training prior to their departure for Japan as well. All the participants were fine (as well as highly capable) gentlemen and ladies, and, moreover, they are all expected to play a vital role after their return to their home country. The Japanese instructors had a very high evaluation of their performance and promise.



### Appreciation for all the Condolences and Sympathy extended to us related to the late Dr. Kaoru Ishikawa

The funeral services for the late Dr. Kaoru Ishikawa was conducted at Zojoji Temple in Shiba, Tokyo, on May 24, jointly by the Union of Japanese Scientists and Engineers and Musashi Institute of Technology, with approximately 2,000 persons in attendance. We would like to report this to you through this communication, and at the same time, we would like to express our deep gratitude for the friendship and support that you extended to the late Dr. Ishikawa while he was still with us, and for the condolence and kind regard you extended at his funeral.

May 1989

Kohei Suzue  
President  
Union of Japanese  
Scientists and  
Engineers

## 30th QUALITY MONTH (November) 1989

“Quality Makes Society Wealthy”

“Making Sure of Quality is the Principle of Workshop”

### CONFERENCES in Tokyo

- Oct. 31 to Nov. 2: 28th QC Conference for Formen
- 7: 19th All Japan QC Circle Convention
- 10: 30th QC Conference for Consumer
- 13: 27th QC Conference for Top Management
- 13: 1989 Deming Prize Awarding Ceremony
- 14 to 17: 39th QC Conference for Managers and Staffs
- 28, 29: 5th QC Conference for Service Industry

### LECTURE MEETING in Local Cities

- Sapporo – 9th, Aomori – 1st, Utsunomiya – 9th
- Urawa – 13th, Numazu – 15th, Nagoya – 30th
- Kanazawa – 2nd, Osaka – 24th, Kobe – 17th
- Hiroshima – 21st, Matsue – 1st, Takamatsu – 22nd
- Fukuoka – 27th, Naha – 24th

# ***JUSE INTERNATIONAL SEMINAR ON TQC***

## ***FOR SENIOR MANAGEMENT***

**October 16–21, 1989 Tokyo**

Lecture and guidance will be given by about 10 prominent and experienced leaders, specifically on the following subjects:

- Basic concept of TQC in Japan;
- Successful Management;
- Effective Statistical Methods;
- Practical Policy Management;
- Conforming Quality Assurance and Reliability for customers;
- Role of Management;
- How to implement QC Circle Activities;
- How to motivate, educate and train employees;
- Recent topics on TQC

The lecturers will deliver lectures on their specialities. Case studies by visiting plants of Deming Application Prize winner companies will enhance the effects of your learning at the seminar.

### ***CALL FOR PAPER***

#### **International Convention on QC Circle 1990 Tokyo**

**– October 24–26, 1990 –**

All papers offered for presentation would preferably be related to the following subjects.

1. Case reports implemented in the workshop by QC Circles.
2. Reports on the promotion of QC Circle Activities.
  - A) Characteristics and Problems of QC Circle promotion.
  - B) Education and Training of the QC Circle instructors, facilitators, leaders and members.
  - C) Nationwide Review on the QC Circle Activities.

About 500 words English abstract should be submitted to the ICQCC'90 Tokyo Organizing Committee in JUSE **not later than February 1, 1990.**

#### **International Symposium on Reliability & Maintainability Tokyo**

**– June 5–8, 1990 –**

Original papers in the field of reliability and maintainability covering the following topics will be welcome.

International Co-operation and National Activities, System and Equipment Reliability, Fault Tolerant System, Device and Component Reliability, Reliability and Maintainability Management, Life Cycle Costing, Quality and Reliability Assurance, Maintainability, Availability and Maintenance Support, Design Aspects, Software Reliability, Mathematical Modeling of Systems, Reliability Testing and Screening, Failure Analysis and Reliability Physics, Safety and Product Liability, Mechanical and Structural Reliability, Human Aspects of Reliability and Maintainability, Education and Training Data Collection.

Abstract at least 800 words in English with some keywords should be submitted to reach the Symposium Secretariat **not later than September 1, 1989.** A brief biographical sketch of the author(s) should be attached.

*For more details, please contact JUSE.*